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SOCIO-ECONOMIC IMPACT ANALYSIS OF NEW AECB REGULATIONS

by

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PAPER

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ABSTRACT

The federal government's Socio-Economic Impact Analysis (SEIA) policy has been in effect since 1978. Under this policy, all new or amended regulations concerning health, safety, or fairness are subjected to a screening exercise which determines whether the regulations are "major" or "minor." The costs and benefits of major regulations are analyzed in depth.

This paper describes the SEIA policy and explains some of the basic concepts. Then the steps the Atomic Energy Control Board (AECB) follows in the analysis of new regulations are summarized. Finally, the AECB's past and forthcoming experience with the SEIA policy is discussed.

RÉSUMÉ

La politique du gouvernement fédéral en matière d'analyses de l'impact socio-économique (AISE) est en vigueur depuis 1978. D'après cette politique, tous les règlements nouveaux ou modifiés concernant la santé, la sécurité ou l'équité sont soumis à un examen qui détermine si lesdits règlements sont «majeurs» ou «mineurs». Les coûts et avantages des règlements majeurs sont analysés en détail.

Le présent rapport décrit la politique des analyses de l'impact socio-économique et explique quelques-uns de ces principes élémentaires. Il résume ensuite les étapes que la Commission de contrôle de l'énergie atomique suit pour analyser les nouveaux règlements. Il traite enfin de l'expérience passée et prévue de la CCEA relativement aux analyses de l'impact socio-économique.

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ABSTRACT

The federal government's Socio-Economic Impact Analysis (SEIA) policy has been in effect since 1978. Under this policy, all new or amended regulations concerning health, safety, or fairness are subjected to a screening exercise which determines whether the regulations are "major" or "minor." The costs and benefits of major regulations are analyzed in depth.

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INTRODUCTION

The private sector has long expressed concern about the ever-increasing volume of regulations with which it must comply. In 1976, the Canadian government, concerned that the cost of complying with new regulations might be adding significantly to inflation, set about to create the Socio-Economic Impact Analysis (SEIA) policy. The primary purpose of this policy is to ensure that social costs and other socio-economic effects resulting from new health, safety and fairness (HSF) regulations receive due consideration in the regulation-making process.

The policy came into effect in 1978. Since that time, all new or amended HSF regulations proposed federally have had to be "screened" before being implemented. A screening exercise is a preliminary analysis of both the effects on resource allocation and the related impacts of the proposed regulations. At the screening stage, only the incremental costs are analyzed. On the basis of the screening exercise, the proposed regulations are classified as either "major" or "minor." If the regulations are found to be major, then a full SEIA is performed, that is, both socio-economic costs and socio-economic benefits of the proposed regulations are analyzed.

Since the Atomic Energy Control Act is one of the statutes covered by this policy, the Atomic Energy Control Board (AECB) submits all new or amended HSF regulations proposed under this act to the appropriate degree of impact analysis. The Technical Advisory Group of the federal government's Treasury Board administers this policy and advises on its application.

Purpose of SEIA

The purpose of the SEIA policy is

(a) to encourage regulators to analyze the impact of HSF regulations, to ensure that effects on resource allocation and other, non-allocative factors are formally considered;

(b) to ensure that the departments performing SEIAs use uniform methods and assumptions in their analyses; and

(c) to increase public participation in the process of assessing the impact of new regulations.

The SEIA is a valuable decision-making tool for regulators, leading us to look beyond technical effectiveness to economic efficiency and social effects. However, the results of an analysis cannot, in themselves, prevent the passage of a set of regulations if those regulations are the best feasible method of achieving an important objective. Ultimately, the responsibility for deciding whether the need or benefits outweigh the costs rests with the regulator and the normal machinery of regulation-making.

The SEIA policy encourages the regulatory agency or department to consult early with the affected parties, preferably when the method of achieving regulatory objectives is still being defined. Measures that might be used instead of regulations include tax incentives and exhortation, as well as voluntary industry standards. When regulations are selected as the best method of obtaining a given objective, public participation may be useful in determining the nature and extent of the regulations. Also, the extent of some requirements may be changed, for instance, those concerning dosimetry or dose-monitoring frequency.

The AECB already has a fairly extensive consultation process for proposed policy changes, including changes to regulations. However, the SEIA policy formalizes the participation by affected parties in the AECB's assessment of the effect and the effectiveness of proposed regulations.

Health, Safety, and Fairness Regulations

The SEIA policy covers only HSF regulations. The following categories are considered:

(a) health and safety, including occupational health and safety, consumer product safety, and transportation safety;
(b) environmental protection; and
(c) fairness, that is, consumer protection and protection against fraud, deception or inaccuracy.

HSF regulations may employ performance standards, prohibitions, and specifications.

Non-HSF regulations, such as those concerning economic rate-setting, are excluded from this policy; however, many such regulations are normally subjected to cost-effectiveness analysis as a matter of departmental policy.

Allocative and Non-Allocative Effects

Socio-economic impact analysis examines two categories of effects: allocative and non-allocative. Allocative effects are those costs associated with compliance with the proposed regulations, and they reflect the effect of the regulations on the efficiency of allocation of resources in the economy.

These effects include costs to government, individual firms, and other private sector groups.

Some examples of allocative costs are

(a) capital expenditures;
(b) annual operating costs such as for labour and energy associated with maintenance, training or retraining, and inspections;
(c) revenue losses associated with changes in production methods; and
(d) government expenditures on administration and enforcement of new regulatory requirements.

Non-allocative costs are the indirect effects that must be considered, such as those concerning

(a) income distribution;
(b) market structure and competition;
(c) regional balance;
(d) international competitiveness and balance of payments;
(e) output;
(f) employment;
(g) energy supplies;
(h) technological progress; and
(i) inflation.

The relevant effects are described qualitatively, because monetary values are usually not applicable.

Incremental Costs

Understanding the concept of "incremental costs" is important, since, in a screening exercise, the incremental costs to the parties expected to bear the majority of the effects are estimated. Incremental costs are the costs which would be borne by the affected parties as a direct result of the implementation of the proposed regulations, and which would not be borne by these parties in the absence of the proposed regulations. Thus, these are costs resulting from differences between the proposed regulations and current conditions. In the AECB's case, current conditions reflect compliance with current regulations, licence conditions, codes and standards, and other requirements. Licence conditions or other requirements introduced in anticipation of the proposed new regulations are not considered current practice for the purpose of the screening exercise.

The method of calculating incremental allocative costs of amended or new regulations resembles that used for life-cycle costing of projects or acquisitions. Capital expenditures to modify facility characteristics or to increase safety and monitoring equipment can be assumed to occur within a given period following implementation of the regulations. Operating costs, such as those due to increased frequency of analyses, new regulatory quality assurance procedures, and modified operating practices, are considered to occur annually.

In the screening exercise, present values of future incremental costs are calculated, using discounting to bring all calculations back to the base year for comparison. The Treasury Board guidelines suggest the use of a 10-per-cent real social discount rate. This rate does not include inflation, but does account for the preference of most people to possess and use money in the present rather than in the future. The time horizon for the "longer time" calculations is usually taken to be either the useful life of capital equipment required for compliance with the regulations, or the life of the products affected.

STEPS IN A SEIA

The process begins informally with consultation with affected parties during the so-called problem definition stage, i.e., when the need for a change in regulatory approach is identified. In the AECB's case, the proposed regulations are drafted and issued for public comment as a Consultative Document. The SEIA then proceeds as follows:

(a) We perform a screening exercise to determine the expected incremental costs of the proposed regulations.

If the regulations are expected to have a minor impact, then

(b) a copy of the screening document accompanies the proposed regulations to the Privy Council Office Section of the Department of Justice. PCO Justice examines the regulations, may suggest changes, and returns the proposed regulations to the AECB. The Board then meets to "make" the regulations, pursuant to Section 9 of the Atomic Energy Control Act. The screening document and revised regulations are sent to the Minister for referral to the Governor-in-Council for approval, and the SEIA process for this minor regulation is complete.

If the regulations are found to have a major impact, then

(c) A full socio-economic impact analysis of costs and benefits of the regulations and

feasible alternatives is performed, with input from the affected parties. A summary of the SEIA is published, along with the proposed regulations, in Part I of the Canada Gazette. Once again, PCO Justice examines the regulations and may suggest changes.

(d) The SEIA is made available to the public for comment for at least 60 days. If the public's comments lead to substantial changes in the proposed regulations, the SEIA is revised before the regulations are sent to the Board to be made and to the Governor-in-Council to be approved.

Note that the steps outlined above do not apply to so-called "emergency regulations," for which the delay introduced by the SEIA process could be harmful. The steps required for such regulations are outlined in Chapter 490 of the federal Treasury Board's Administrative Policy Manual and will not be discussed further in this paper.

The Screening Exercise

The screening exercise is the first step in the analysis of regulations. Its purpose is to determine whether a proposed regulation (or amendment) is "major." A preliminary estimate of the present value of the expected allocative costs is made, and the results are compared to the cost criteria which define major regulations:

(a) the present value of the incremental costs incurred in a single continuous period of 12 months exceeds $10 million;

(b) the present value of the incremental costs incurred over N years exceeds $(10 + 2N) million, where N is any integer between 1 and 10, inclusive; or

(c) the present value of the incremental costs incurred over a longer time period exceeds $35 million.

In addition, if the regulations are expected to have a significant non-allocative effect, then, whether or not their allocative costs exceed any of the preceding three criteria, the regulations are major. However, there are no specific criteria for deciding whether a non-allocative effect is "significant."

Although a screening exercise uses data from many sources, mainly about current operating procedures and costs as well as predicted incremental costs, the final result of the analysis is not exact.

People who are familiar with forecasting a budget for one company will appreciate the difficulty inherent in predicting the costs when the number of companies is large and the actual expenditures to be made depend on each individual company's method of complying with regulations. AECB staff and consultants attempting to predict costs can only estimate what changes each company will have to make, and at what cost. Thus, it should not surprise you that we do not expect the final calculation of costs to be a perfect prediction. However, we do expect, based on our experience with the SEIA policy, that most estimates will fall clearly into either the major or the minor category.

The Socio-Economic Impact Analysis

In a full SEIA, the allocative effects of the proposed regulations are usually evaluated using benefit-cost or cost-effectiveness analysis. In benefit-cost analysis, relevant social costs and benefits are identified and measured in monetary terms, then compared with the monetary costs and benefits of alternative methods of achieving the same goals.

Cost-effectiveness analysis is employed when benefits cannot be measured in monetary terms, for instance, when benefits involve reduction of risk to life or to health. This type of analysis examines the costs of achieving specific non-monetary objectives through technological and policy alternatives.

A full SEIA also includes a more detailed study of the non-allocative impact. Economic forecasts, information about the industries concerned, and other available data would be used to identify the relevant non-allocative costs and benefits, and to determine their significance.

Sensitivity analysis is used in the SEIA to determine whether a large margin of error in any of the data or assumptions would have significant bearing on the conclusions. For example, in addition to calculating the present values using a 10-per-cent real social rate of discount, we would calculate the present values for discount rates of 5 and 15 per cent. Sensitivity analysis can also be used to determine the significance of any disputed data or of any assumptions underlying the analysis.

If certain requirements were estimated to impose costs which seemed to be out of proportion with their expected benefits, the proposed regulations would be modified. In cases where the industry affected did not agree with the screening exercise or the SEIA, the AECB's Board would decide, on the basis of all the available information, how the regulations should proceed.

In analyzing the costs and other effects of the regulations, the AECB can get information from two main sources: the industries affected and AECB project officers who deal directly with those industries. The first source is preferable to us, because it promotes participation in the regulation-making process and because the industries may identify impacts of which we are not aware.

AECB EXPERIENCE WITH SEIA

The federal government's SEIA policy came into effect in August 1978, during a relatively quiet period in the AECB's development of regulations. As a result, the main effect of the policy in its early years was to serve as a reminder to us that any regulations or amendments that might be proposed would have to be as cost-beneficial as possible.

In 1980, the AECB funded a research contract called "Estimating the Costs of AECB Regulation," which attempted to determine the costs that had been incurred by the various industries the AECB licenses and, in addition, to classify the costs as those which would have been borne anyway by prudent operators and those which were the direct result of AECB requirements. Although that study was fairly comprehensive and yielded some interesting conclusions, it did not establish a method by which costs of future regulatory changes might be forecast.

Radiography Amendments

In 1981, the AECB issued for public comment the proposed "Amendments [to the Atomic Energy Control Regulations] Concerning Industrial Radiography, and Related Safety Requirements and Responsibilities." The primary purpose of these regulations was to consolidate all the then-current requirements for radiation safety in most industrial radiography operations. A second major purpose was to transfer certain legal responsibilities from licensees to certified operators. These amendments were based on existing regulations, licence conditions, and advisory codes of practice. Comments received from radiographers and other interested parties were factored into the final document. The screening exercise, which was performed by AECB staff, taking account of public comments, showed that the impact would be minor. This screening exercise was accepted by the Privy Council Office, and the amendments were promulgated.

Transport Packaging of Radioactive Materials Regulations

The Transport Packaging of Radioactive Materials Regulations, also issued for public comment in 1981, were proposed as a means of ensuring that radioactive materials continued to be packaged safely for transportation. These regulations were based on current practice, most of which followed the guidelines published by the International Atomic Energy Agency. Hence, AECB staff forecast that there would be no significant changes in operating procedures or compliance costs. Comments submitted by licensees during the consultation stage for the regulations seemed to support that view. The screening exercise concluded that the impact would be minor and that the full analysis would not be required. Therefore, after revision to factor in public comments, the regulations were promulgated.

Uranium Mines (Ontario) Occupational Health and Safety Regulations

In 1984, the AECB completed an additional screening exercise concerning the Uranium Mines (Ontario) Occupational Health and Safety Regulations. These regulations are basically a statement of change of federal body responsible for occupational health and safety in Ontario uranium mining facilities. The substance of these regulations had been developed through extensive consultation with the industry affected, the provincial government, and labour unions; furthermore, the only economic impact would be incurred by federal government departments. No significant non-allocative expenses were expected to result from this change. Hence, the impact expected was minor, and these regulations were promulgated.

Interim Amendment to Atomic Energy Control Regulations

A screening exercise completed early in 1985 concerned a proposed interim amendment to the Atomic Energy Control Regulations, to remove special dose limits for female atomic radiation workers (ARWs) except during a period of pregnancy. The amendment was promulgated in April, 1985. It will require pregnant ARWs, once their pregnancy is known, to inform their employers in order that special dose limits, intended to protect the embryo or foetus, can be imposed. The screening exercise, performed by AECB staff, showed that the removal of special dose limits for non-pregnant female ARWs might lead to more cost-effective employment practices. Since the amendment removes a perceived contravention of current human rights legislation, the AECB decided that any costs that might be incurred by licensees in adapting to the amendment would be more correctly attributable to human rights legislation.

The non-allocative effects identified included removal of the perceived barrier to employment of female ARWs in certain types of work, shifts of radiation protection efforts to more effective areas, and a possible, very small increase in risk of acute exposure to an embryo or foetus during the early part of a pregnancy. The overall impact of this amendment has been estimated to be minor.

Although neither licensees nor the employees affected were asked to take part in this screening exercise as such, they had been afforded the opportunity to comment on the proposed change when it was issued for public comment as part of our Consultative Document C-47, "Proposed Amendments [to Atomic Energy Control Regulations] Relating to the Limitation of Exposure to Ionizing Radiation."

Uranium and Thorium Mining Regulations

As this paper is being written, AECB staff are concluding a screening exercise for the proposed Uranium and Thorium Mining Regulations. These regulations were reviewed extensively by a tri-partite committee consisting of uranium mining company management, labour unions, and government representatives. This consultation began before the regulations were ready to be issued as a consultative document, and continued during and after the normal period for public comment.

After extensive consultation about the impact of these regulations with members of the uranium mining industry as well as internal studies, AECB staff have concluded that these regulations are minor. The most significant sources of incremental costs will likely be requirements for additional training and medical surveillance of employees, with some expenditures for new equipment and for increased monitoring and reporting requirements.

This screening exercise was the first one in which the AECB explicitly requested cost impact information from the industry affected. However, some uranium mining companies challenged the interpretation of "current practice" used by AECB staff as the basis for performing the screening exercise. These companies countered that past changes in regulatory requirements effected through licence conditions should be included in the SEIA. At the time of writing, the screening exercise is being completed based on the Board staff's interpretation; however, it is expected that the issues raised by the uranium mining companies will also be raised by them at an upcoming meeting with the Board.

FUTURE AECB EXPERIENCE WITH SEIA

The AECB is currently preparing to issue General Amendments to the Atomic Energy Control Regulations. Because these amendments may affect most types of nuclear facilities and users of radioactive materials licensed by the AECB, as well as employees and some members of the general public, a major impact is probable. Therefore, the AECB has decided that a full analysis will be performed, probably under contract. As it has in the past, the AECB will be inviting affected parties to submit estimates of the expected effects of these regulations when the Consultative Document is issued.

In the near future, AECB staff or the contractor will be approaching members of the nuclear industry, radioisotope licensees, and other interested parties for help in collecting information for this SEIA. First we will try to establish a benchmark for determination of current practices, so that problems in assessing incremental costs can be minimized. We hope that when you are asked to supply information for this study, you will do so. After all, the SEIA policy was established in the interests of all Canadians. Only by working together can we ensure that all the goals of the policy are achieved.

SUMMARY

This paper presented an overview of the SEIA policy, including the purpose, process, and terminology used, and then described the AECB's experience with the policy. With the proposed General Amendments to the Atomic Energy Control Regulations due to be issued for public comment in the near future, the AECB feels that it is important to inform affected parties of the SEIA process and to invite their participation.

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